

Rec'd Postage

30 JUN 2003

## SEQUENCE LISTING

<110> Bukh, Jens  
Purcell, Robert  
Yanagi, Masayuki  
Emerson, Suzanne

<120> Infectious cDNA Clone of GB virus B and  
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<140> US 10/009,002

<141> 2001-12-03

<150> PCT/US00/15293

<151> 2000-06-02

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<151> 1999-06-04

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 Met Thr Gly Ile Asp Pro Arg Thr Trp Thr Gly Thr Ile Phe Arg Leu  
       965                  970                  975  
 Gly Ser Leu Ala Thr Ser Tyr Met Gly Phe Val Cys Asp Asn Val Leu  
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 Tyr Thr Ala His His Gly Ser Lys Gly Arg Arg Leu Ala His Pro Thr  
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 Gly Ser Ile His Pro Ile Thr Val Asp Ala Ala Asn Asp Gln Asp Ile  
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 Tyr Gln Pro Pro Cys Gly Ala Gly Ser Leu Thr Arg Cys Ser Cys Gly  
       1025                1030                1035                1040  
 Glu Thr Lys Gly Tyr Leu Val Thr Arg Leu Gly Ser Leu Val Glu Val

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Asn Lys Ser Asp Asp Pro Tyr Trp Cys Val Cys Gly Ala Leu Pro Met		
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Ala Val Ala Lys Gly Ser Ser Gly Ala Pro Ile Leu Cys Ser Ser Gly		
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His Val Ile Gly Met Phe Thr Ala Ala Arg Asn Ser Gly Gly Ser Val		
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Ser Gln Ile Arg Val Arg Pro Leu Val Cys Ala Gly Tyr His Pro Gln		
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Tyr Thr Ala His Ala Thr Leu Asp Thr Lys Pro Thr Val Pro Asn Glu		
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Tyr Ser Val Gln Ile Leu Ile Ala Pro Thr Gly Ser Gly Lys Ser Thr		
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Lys Leu Pro Leu Ser Tyr Met Gln Glu Lys Tyr Glu Val Leu Val Leu		
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Asn Pro Ser Val Ala Thr Thr Ala Ser Met Pro Lys Tyr Met His Ala		
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Thr Tyr Gly Val Asn Pro Asn Cys Tyr Phe Asn Gly Lys Cys Thr Asn		
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Thr Gly Ala Ser Leu Thr Tyr Ser Thr Tyr Gly Met Tyr Leu Thr Gly		
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Ala Cys Ser Arg Asn Tyr Asp Val Ile Ile Cys Asp Glu Cys His Ala		
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Thr Asp Ala Thr Thr Val Leu Gly Ile Gly Lys Val Leu Thr Glu Ala		
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Pro Ser Lys Asn Val Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro		
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Gly Val Ile Pro Thr Pro His Ala Asn Ile Thr Glu Ile Gln Leu Thr		
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Asp Glu Gly Thr Ile Pro Phe His Gly Lys Lys Ile Lys Glu Glu Asn		
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Leu Lys Lys Gly Arg His Leu Ile Phe Glu Ala Thr Lys Lys His Cys		
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Asp Glu Leu Ala Asn Glu Leu Ala Arg Lys Gly Ile Thr Ala Val Ser		
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Tyr Tyr Arg Gly Cys Asp Ile Ser Lys Ile Pro Glu Gly Asp Cys Val		
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Val Val Ala Thr Asp Ala Leu Cys Thr Gly Tyr Thr Gly Asp Phe Asp		
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Ser Val Tyr Asp Cys Ser Leu Met Val Glu Gly Thr Cys His Val Asp		
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Leu Asp Pro Thr Phe Thr Met Gly Val Arg Val Cys Gly Val Ser Ala		
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Ile Val Lys Gly Gln Arg Arg Gly Arg Thr Gly Arg Gly Arg Ala Gly		
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Pro Gly Leu Pro Ala Ile Gly Ala Asn Leu Asp Glu Trp Ala Asp Leu		
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1955	1960	1965
Pro Thr Asp Trp Thr Ser Leu Val Val Asn Tyr Gly Val Arg Asp Tyr		
1970	1975	1980
Cys Lys Tyr Glu Lys Met Gly Asp His Ile Phe Val Thr Ala Val Ser		
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Ser Pro Asn Val Cys Phe Thr Gln Val Pro Pro Thr Leu Arg Ala Ala		
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 165 170 175  
 Phe Leu Leu Ala Leu Leu Ser Cys Ile Thr Thr Pro Val Ser Ala Ala  
 180 185 190  
 Glu Val Lys Asn Ile Ser Thr Gly Tyr Met Val Thr Asn Asp Cys Thr  
 195 200 205  
 Asn Asp Ser Ile Thr Trp Gln Leu Gln Ala Ala Val Leu His Val Pro  
 210 215 220  
 Gly Cys Val Pro Cys Glu Lys Val Gly Asn Ala Ser Gln Cys Trp Ile  
 225 230 235 240  
 Pro Val Ser Pro Asn Val Ala Val Gln Arg Pro Gly Ala Leu Thr Gln  
 245 250 255  
 Gly Leu Arg Thr His Ile Asp Met Val Val Met Ser Ala Thr Leu Cys  
 260 265 270  
 Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly Gly Val Met Leu Ala Ala  
 275 280 285  
 Gln Met Phe Ile Val Ser Pro Gln His His Trp Phe Val Gln Asp Cys

290	295	300
Asn Cys Ser Ile Tyr Pro Gly Thr Ile Thr Gly His Arg Met Ala Trp		
305	310	315
Asp Met Met Met Asn Trp Ser Pro Thr Ala Thr Met Ile Leu Ala Tyr		
325	330	335
Ala Met Arg Val Pro Glu Val Ile Ile Asp Ile Ile Ser Gly Ala His		
340	345	350
Trp Gly Val Met Phe Gly Leu Ala Tyr Phe Ser Met Gln Gly Ala Trp		
355	360	365
Ala Lys Val Val Val Ile Leu Leu Ala Ala Gly Val Asp Ala Arg		
370	375	380
Thr His Thr Val Gly Gly Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr		
385	390	395
Ser Leu Phe Asp Met Gly Pro Arg Gln Lys Ile Gln Leu Val Asn Thr		
405	410	415
Asn Gly Ser Trp His Ile Asn Arg Thr Ala Leu Asn Cys Asn Asp Ser		
420	425	430
Leu His Thr Gly Phe Ile Ala Ser Leu Phe Tyr Thr His Ser Phe Asn		
435	440	445
Ser Ser Gly Cys Pro Glu Arg Met Ser Ala Cys Arg Ser Ile Glu Ala		
450	455	460
Phe Arg Val Gly Trp Gly Ala Leu Gln Tyr Glu Asp Asn Val Thr Asn		
465	470	475
Pro Glu Asp Met Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Gln Cys		
485	490	495
Gly Val Val Ser Ala Lys Thr Val Cys Gly Pro Val Tyr Cys Phe Thr		
500	505	510
Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Leu Gly Ala Pro Thr		
515	520	525
Tyr Thr Trp Gly Glu Asn Glu Thr Asp Val Phe Leu Leu Asn Ser Thr		
530	535	540
Arg Pro Pro Leu Gly Ser Trp Phe Gly Cys Thr Trp Met Asn Ser Ser		
545	550	555
Gly Tyr Thr Lys Thr Cys Gly Ala Pro Pro Cys Arg Thr Arg Ala Asp		
565	570	575
Phe Asn Ala Ser Thr Asp Leu Leu Cys Pro Thr Asp Cys Phe Arg Lys		
580	585	590
His Pro Asp Thr Thr Tyr Leu Lys Cys Gly Ser Gly Pro Trp Leu Thr		
595	600	605
Pro Arg Cys Leu Ile Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys		
610	615	620
Thr Val Asn Tyr Thr Ile Phe Lys Ile Arg Met Tyr Val Gly Val		
625	630	635
Glu His Arg Leu Thr Ala Ala Cys Asn Phe Thr Arg Gly Asp Arg Cys		
645	650	655
Asn Leu Glu Asp Arg Asp Arg Ser Gln Leu Ser Pro Leu Leu His Ser		
660	665	670
Thr Thr Glu Trp Ala Ile Leu Pro Cys Ser Tyr Ser Asp Leu Pro Ala		
675	680	685
Leu Ser Thr Gly Leu Leu His Leu His Gln Asn Ile Val Asp Val Gln		
690	695	700
Phe Met Tyr Gly Leu Ser Pro Ala Leu Thr Lys Tyr Ile Val Arg Trp		
705	710	715
Glu Trp Val Ile Leu Leu Phe Leu Leu Leu Ala Asp Ala Arg Val Cys		
725	730	735

Ala Cys Leu Trp Met Leu Ile Leu Leu Gly Gln Ala Glu Ala Ala Leu  
     740                  745                  750  
 Glu Lys Leu Val Ile Leu His Ala Ala Ser Ala Ala Ser Cys Asn Gly  
     755                  760                  765  
 Phe Leu Tyr Phe Val Ile Phe Phe Val Ala Ala Trp Tyr Ile Lys Gly  
     770                  775                  780  
 Arg Val Val Pro Leu Ala Thr Tyr Ser Leu Thr Gly Leu Trp Ser Phe  
     785                  790                  795                  800  
 Ser Leu Leu Leu Ala Leu Pro Gln Gln Ala Tyr Ala Tyr Asp Ala  
     805                  810                  815  
 Ser Val His Gly Gln Ile Gly Ala Ala Leu Leu Val Met Ile Thr Leu  
     820                  825                  830  
 Phe Thr Leu Thr Pro Gly Tyr Lys Thr Leu Leu Ser Arg Phe Leu Trp  
     835                  840                  845  
 Trp Leu Cys Tyr Leu Leu Thr Leu Gly Glu Ala Met Val Gln Glu Trp  
     850                  855                  860  
 Ala Pro Pro Met Gln Val Arg Gly Gly Arg Asp Gly Ile Ile Trp Ala  
     865                  870                  875                  880  
 Val Ala Ile Phe Tyr Pro Gly Val Val Phe Asp Ile Thr Lys Trp Leu  
     885                  890                  895  
 Leu Ala Val Leu Gly Pro Ala Tyr Leu Leu Lys Gly Ala Leu Thr Arg  
     900                  905                  910  
 Val Pro Tyr Phe Val Arg Ala His Ala Leu Leu Arg Met Cys Thr Met  
     915                  920                  925  
 Ala Arg His Leu Ala Gly Gly Arg Tyr Val Gln Met Ala Leu Leu Ala  
     930                  935                  940  
 Leu Gly Arg Trp Thr Gly Thr Tyr Ile Tyr Asp His Leu Thr Pro Met  
     945                  950                  955                  960  
 Ser Asp Trp Ala Ala Ser Gly Leu Arg Asp Leu Ala Val Ala Val Glu  
     965                  970                  975  
 Pro Ile Ile Phe Ser Pro Met Glu Lys Lys Val Ile Val Trp Gly Ala  
     980                  985                  990  
 Glu Thr Ala Ala Cys Gly Asp Ile Leu His Gly Leu Pro Val Ser Ala  
     995                  1000                 1005  
 Arg Leu Gly Arg Glu Val Leu Leu Gly Pro Ala Asp Gly Tyr Thr Ser  
     1010                 1015                 1020  
 Lys Gly Trp Ser Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr  
     1025                 1030                 1035                 1040  
 Arg Gly Leu Leu Gly Thr Ile Val Val Ser Met Thr Gly Arg Asp Lys  
     1045                 1050                 1055  
 Thr Glu Gln Ala Gly Glu Ile Gln Val Leu Ser Thr Val Thr Gln Ser  
     1060                 1065                 1070  
 Phe Leu Gly Thr Ser Ile Ser Gly Val Leu Trp Thr Val Tyr His Gly  
     1075                 1080                 1085  
 Ala Gly Asn Lys Thr Leu Ala Gly Ser Arg Gly Pro Val Thr Gln Met  
     1090                 1095                 1100  
 Tyr Ser Ser Ala Glu Gly Asp Leu Val Gly Trp Pro Ser Pro Pro Gly  
     1105                 1110                 1115                 1120  
 Thr Lys Ser Leu Glu Pro Cys Thr Cys Gly Ala Val Asp Leu Tyr Leu  
     1125                 1130                 1135  
 Val Thr Arg Asn Ala Asp Val Ile Pro Ala Arg Arg Arg Gly Asp Lys  
     1140                 1145                 1150  
 Arg Gly Ala Leu Leu Ser Pro Arg Pro Leu Ser Thr Leu Lys Gly Ser  
     1155                 1160                 1165  
 Ser Gly Gly Pro Val Leu Cys Pro Arg Gly His Ala Val Gly Val Phe

1170	1175	1180
Arg Ala Ala Val Cys Ser Arg Gly Val Ala Lys Ser Ile Asp Phe Ile		
1185	1190	1195
Pro Val Glu Thr Leu Asp Ile Val Thr Arg Ser Pro Thr Phe Ser Asp		
1205	1210	1215
Asn Ser Thr Pro Pro Ala Val Pro Gln Thr Tyr Gln Val Gly Tyr Leu		
1220	1225	1230
His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Val Ala Tyr		
1235	1240	1245
Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala		
1250	1255	1260
Thr Leu Gly Phe Gly Ala Tyr Leu Ser Lys Ala His Gly Ile Asn Pro		
1265	1270	1275
Asn Ile Arg Thr Gly Val Arg Thr Val Thr Thr Gly Ala Pro Ile Thr		
1285	1290	1295
Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ala Gly Gly		
1300	1305	1310
Ala Tyr Asp Ile Ile Cys Asp Glu Cys His Ala Val Asp Ser Thr		
1315	1320	1325
Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly		
1330	1335	1340
Val Arg Leu Thr Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr		
1345	1350	1355
Thr Pro His Pro Asn Ile Glu Glu Val Ala Leu Gly Gln Glu Gly Glu		
1365	1370	1375
Ile Pro Phe Tyr Gly Arg Ala Ile Pro Leu Ser Tyr Ile Lys Gly Gly		
1380	1385	1390
Arg His Leu Ile Phe Cys His Ser Lys Lys Cys Asp Glu Leu Ala		
1395	1400	1405
Ala Ala Leu Arg Gly Met Gly Leu Asn Ser Val Ala Tyr Tyr Arg Gly		
1410	1415	1420
Leu Asp Val Ser Val Ile Pro Thr Gln Gly Asp Val Val Val Ala		
1425	1430	1435
Thr Asp Ala Leu Met Thr Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile		
1445	1450	1455
Asp Cys Asn Val Ala Val Thr Gln Val Val Asp Phe Ser Leu Asp Pro		
1460	1465	1470
Thr Phe Thr Ile Thr Thr Gln Ile Val Pro Gln Asp Ala Val Ser Arg		
1475	1480	1485
Ser Gln Arg Arg Gly Arg Thr Gly Arg Gly Arg Leu Gly Ile Tyr Arg		
1490	1495	1500
Tyr Val Ser Thr Gly Glu Arg Ala Ser Gly Met Phe Asp Ser Val Val		
1505	1510	1515
Leu Cys Glu Cys Tyr Asp Ala Gly Ala Ala Trp Tyr Glu Leu Thr Pro		
1525	1530	1535
Ser Glu Thr Thr Val Arg Leu Arg Ala Tyr Phe Asn Thr Pro Gly Leu		
1540	1545	1550
Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Ala Val Phe Thr Gly		
1555	1560	1565
Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly		
1570	1575	1580
Glu Asn Phe Ala Tyr Leu Thr Ala Tyr Gln Ala Thr Val Cys Ala Arg		
1585	1590	1595
Ala Lys Ala Pro Pro Pro Ser Trp Asp Val Met Trp Lys Cys Leu Thr		
1605	1610	1615

Arg Leu Lys Pro Thr Leu Val Gly Pro Thr Pro Leu Leu Tyr Arg Leu  
                  1620                 1625                 1630  
 Gly Ser Val Thr Asn Glu Val Thr Leu Thr His Pro Val Thr Lys Tyr  
                  1635                 1640                 1645  
 Ile Ala Thr Cys Met Gln Ala Asp Leu Glu Val Met Thr Ser Thr Trp  
                  1650                 1655                 1660  
 Val Leu Ala Gly Gly Val Leu Ala Ala Val Ala Ala Tyr Cys Leu Ala  
                  1665                 1670                 1675                 1680  
 Thr Gly Cys Val Cys Ile Ile Gly Arg Leu His Ile Asn Gln Arg Ala  
                  1685                 1690                 1695  
 Val Val Ala Pro Asp Lys Glu Val Leu Tyr Glu Ala Phe Asp Glu Met  
                  1700                 1705                 1710  
 Glu Glu Cys Ala Ser Arg Ala Ala Leu Ile Glu Glu Gly Gln Arg Ile  
                  1715                 1720                 1725  
 Ala Glu Met Leu Lys Ser Lys Ile Gln Gly Leu Leu Gln Gln Ala Ser  
                  1730                 1735                 1740  
 Lys Gln Ala Gln Asp Ile Gln Pro Thr Val Gln Ala Ser Trp Pro Lys  
                  1745                 1750                 1755                 1760  
 Val Glu Gln Phe Trp Ala Lys His Met Trp Asn Phe Ile Ser Gly Ile  
                  1765                 1770                 1775  
 Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro Ala Val Ala  
                  1780                 1785                 1790  
 Ser Met Met Ala Phe Ser Ala Ala Leu Thr Ser Pro Leu Ser Thr Ser  
                  1795                 1800                 1805  
 Thr Thr Ile Leu Leu Asn Ile Leu Gly Gly Trp Leu Ala Ser Gln Ile  
                  1810                 1815                 1820  
 Ala Pro Pro Ala Gly Ala Thr Gly Phe Val Val Ser Gly Leu Val Gly  
                  1825                 1830                 1835                 1840  
 Ala Ala Val Gly Ser Ile Gly Leu Gly Lys Val Leu Val Asp Ile Leu  
                  1845                 1850                 1855  
 Ala Gly Tyr Gly Ala Gly Ile Ser Gly Ala Leu Val Ala Phe Lys Ile  
                  1860                 1865                 1870  
 Met Ser Gly Glu Lys Pro Ser Met Glu Asp Val Val Asn Leu Leu Pro  
                  1875                 1880                 1885  
 Gly Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Ile Cys Ala Ala  
                  1890                 1895                 1900  
 Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met  
                  1905                 1910                 1915                 1920  
 Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ala Pro Thr  
                  1925                 1930                 1935  
 His Tyr Val Thr Glu Ser Asp Ala Ser Gln Arg Val Thr Gln Leu Leu  
                  1940                 1945                 1950  
 Gly Ser Leu Thr Ile Thr Ser Leu Leu Arg Arg Leu His Asn Trp Ile  
                  1955                 1960                 1965  
 Thr Glu Asp Cys Pro Ile Pro Cys Gly Gly Ser Trp Leu Arg Asp Val  
                  1970                 1975                 1980  
 Trp Asp Trp Val Cys Thr Ile Leu Thr Asp Phe Lys Asn Trp Leu Thr  
                  1985                 1990                 1995                 2000  
 Ser Lys Leu Phe Pro Lys Met Pro Gly Leu Pro Phe Val Ser Cys Gln  
                  2005                 2010                 2015  
 Lys Gly Tyr Lys Gly Val Trp Ala Gly Thr Gly Ile Met Thr Thr Arg  
                  2020                 2025                 2030  
 Cys Pro Cys Gly Ala Asn Ile Ser Gly Asn Val Arg Leu Gly Ser Met  
                  2035                 2040                 2045  
 Arg Ile Thr Gly Pro Lys Thr Cys Met Asn Ile Trp Gln Gly Thr Phe

2050	2055	2060
Pro Ile Asn Cys Tyr Thr Glu Gly Gln Cys Val Pro Lys Pro Ala Pro		
2065	2070	2075
Asn Phe Lys Val Ala Ile Trp Arg Val Ala Ala Ser Glu Tyr Ala Glu		2080
2085	2090	2095
Val Thr Gln His Gly Ser Tyr His Tyr Ile Thr Gly Leu Thr Thr Asp		
2100	2105	2110
Asn Leu Lys Val Pro Cys Gln Leu Pro Ser Pro Glu Phe Phe Ser Trp		
2115	2120	2125
Val Asp Gly Val Gln Ile His Arg Phe Ala Pro Thr Pro Lys Pro Phe		
2130	2135	2140
Phe Arg Asp Glu Val Ser Phe Cys Val Gly Leu Asn Ser Phe Val Val		
2145	2150	2155
Gly Ser Gln Leu Pro Cys Asp Pro Glu Pro Asp Thr Asp Val Leu Met		2160
2165	2170	2175
Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Thr Ala Ala Arg		
2180	2185	2190
Arg Leu Ala Arg Gly Ser Pro Pro Ser Glu Ala Ser Ser Ser Ala Ser		
2195	2200	2205
Gln Leu Ser Ala Pro Ser Leu Arg Ala Thr Cys Thr Thr His Gly Lys		
2210	2215	2220
Ala Tyr Asp Val Asp Met Val Asp Ala Asn Leu Phe Met Gly Gly Asp		
2225	2230	2235
Val Thr Arg Ile Glu Ser Gly Ser Lys Val Val Val Leu Asp Ser Leu		
2245	2250	2255
Asp Pro Met Val Glu Glu Arg Ser Asp Leu Glu Pro Ser Ile Pro Ser		
2260	2265	2270
Glu Tyr Met Leu Pro Lys Lys Arg Phe Pro Pro Ala Leu Pro Ala Trp		
2275	2280	2285
Ala Arg Pro Asp Tyr Asn Pro Pro Leu Val Glu Ser Trp Lys Arg Pro		
2290	2295	2300
Asp Tyr Gln Pro Ala Thr Val Ala Gly Cys Ala Leu Pro Pro Pro Arg		
2305	2310	2315
Lys Thr Pro Thr Pro Pro Pro Arg Arg Arg Arg Thr Val Gly Leu Ser		2320
2325	2330	2335
Glu Asp Ser Ile Gly Asp Ala Leu Gln Gln Leu Ala Ile Lys Ser Phe		
2340	2345	2350
Gly Gln Pro Pro Pro Ser Gly Asp Ser Gly Leu Ser Thr Gly Ala Gly		
2355	2360	2365
Ala Ala Asp Ser Gly Ser Gln Thr Pro Pro Asp Glu Leu Ala Leu Ser		
2370	2375	2380
Glu Thr Gly Ser Ile Ser Ser Met Pro Pro Leu Glu Gly Glu Leu Gly		
2385	2390	2395
Asp Pro Asp Leu Glu Pro Glu Gln Val Glu Pro Gln Pro Pro Pro Gln		
2405	2410	2415
Gly Gly Val Ala Ala Pro Gly Ser Asp Ser Gly Ser Trp Ser Thr Cys		
2420	2425	2430
Ser Glu Glu Asp Asp Ser Val Val Cys Cys Ser Met Ser Tyr Ser Trp		
2435	2440	2445
Thr Gly Ala Leu Ile Thr Pro Cys Ser Pro Glu Glu Lys Leu Pro		
2450	2455	2460
Ile Asn Pro Leu Ser Asn Ser Leu Leu Arg Tyr His Asn Lys Val Tyr		
2465	2470	2475
Cys Thr Thr Thr Lys Ser Ala Ser Leu Arg Ala Lys Lys Val Thr Phe		2480
2485	2490	2495

Asp Arg Met Gln Val Leu Asp Ser Tyr Tyr Asp Ser Val Leu Lys Asp  
                  2500                 2505                 2510  
 Ile Lys Leu Ala Ala Ser Lys Val Thr Ala Arg Leu Leu Thr Met Glu  
                  2515                 2520                 2525  
 Glu Ala Cys Gln Leu Thr Pro Pro His Ser Ala Arg Ser Lys Tyr Gly  
                  2530                 2535                 2540  
 Phe Gly Ala Lys Glu Val Arg Ser Leu Ser Gly Arg Ala Val Asn His  
                  2545                 2550                 2555                 2560  
 Ile Lys Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Glu Thr Pro Ile  
                  2565                 2570                 2575  
 Pro Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Asp Pro Thr  
                  2580                 2585                 2590  
 Lys Gly Gly Lys Ala Ala Arg Leu Ile Val Tyr Pro Asp Leu Gly  
                  2595                 2600                 2605  
 Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Ile Thr Gln Lys Leu  
                  2610                 2615                 2620  
 Pro Gln Ala Val Met Gly Ala Ser Tyr Gly Phe Gln Tyr Ser Pro Ala  
                  2625                 2630                 2635                 2640  
 Gln Arg Val Glu Phe Leu Leu Lys Ala Trp Ala Glu Lys Lys Asp Pro  
                  2645                 2650                 2655  
 Met Gly Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu  
                  2660                 2665                 2670  
 Arg Asp Ile Arg Thr Glu Glu Ser Ile Tyr Arg Ala Cys Ser Leu Pro  
                  2675                 2680                 2685  
 Glu Glu Ala His Thr Ala Ile His Ser Leu Thr Glu Arg Leu Tyr Val  
                  2690                 2695                 2700  
 Gly Gly Pro Met Phe Asn Ser Lys Gly Gln Thr Cys Gly Tyr Arg Arg  
                  2705                 2710                 2715                 2720  
 Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Met Gly Asn Thr Ile Thr  
                  2725                 2730                 2735  
 Cys Tyr Val Lys Ala Leu Ala Ala Cys Lys Ala Ala Gly Ile Ile Ala  
                  2740                 2745                 2750  
 Pro Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Ser Glu Ser  
                  2755                 2760                 2765  
 Gln Gly Thr Glu Glu Asp Glu Arg Asn Leu Arg Ala Phe Thr Glu Ala  
                  2770                 2775                 2780  
 Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Arg Pro Glu Tyr  
                  2785                 2790                 2795                 2800  
 Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala Leu  
                  2805                 2810                 2815  
 Gly Pro Gln Gly Arg Arg Tyr Tyr Leu Thr Arg Asp Pro Thr Thr  
                  2820                 2825                 2830  
 Pro Ile Ala Arg Ala Ala Trp Glu Thr Val Arg His Ser Pro Val Asn  
                  2835                 2840                 2845  
 Ser Trp Leu Gly Asn Ile Ile Gln Tyr Ala Pro Thr Ile Trp Ala Arg  
                  2850                 2855                 2860  
 Met Val Leu Met Thr His Phe Phe Ser Ile Leu Met Ala Gln Asp Thr  
                  2865                 2870                 2875                 2880  
 Leu Asp Gln Asn Leu Asn Phe Glu Met Tyr Gly Ala Val Tyr Ser Val  
                  2885                 2890                 2895  
 Ser Pro Leu Asp Leu Pro Ala Ile Ile Glu Arg Leu His Gly Leu Asp  
                  2900                 2905                 2910  
 Ala Phe Ser Leu His Thr Tyr Thr Pro His Glu Leu Thr Arg Val Ala  
                  2915                 2920                 2925  
 Ser Ala Leu Arg Lys Leu Gly Ala Pro Pro Leu Arg Ala Trp Lys Ser

2930	2935	2940
Arg Ala Arg Ala Val Arg Ala Ser Leu Ile Ser Arg Gly Gly Arg Ala		
2945	2950	2955
Ala Val Cys Gly Arg Tyr Leu Phe Asn Trp Ala Val Lys Thr Lys Leu		2960
2965	2970	2975
Lys Leu Thr Pro Leu Pro Glu Ala Arg Leu Leu Asp Leu Ser Ser Trp		
2980	2985	2990
Phe Thr Val Gly Ala Gly Gly Asp Ile Tyr His Ser Val Ser Arg		
2995	3000	3005
Ala Arg Pro Arg Leu Leu Phe Gly Leu Leu Leu Leu Phe Val Gly		
3010	3015	3020
Val Gly Leu Phe Leu Leu Pro Ala Arg		
3025	3030	